

## 2001 Chevrolet S10 Pickup

2001 ACCESSORIES & EQUIPMENT Remote Keyless Entry Systems - Blazer, Bravada, Jimmy, Sonoma & S10 Pickup

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#### Remote Keyless Entry Systems - Blazer, Bravada, Jimmy, Sonoma & S10 Pickup

## DESCRIPTION

**WARNING:** Vehicles are equipped with air bag supplemental restraint system. Before attempting ANY repairs involving steering column, instrument panel or related components, see **SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM** in appropriate **AIR BAG RESTRAINT SYSTEMS** article.

Remote keyless entry system is used to lock and unlock vehicle doors and liftgate window. Transmitter sends coded signals to Remote Control Door Lock Receiver (RCDLR), capable of recognizing 4 transmitters. RCDLR, located in left side instrument panel sound insulator, decodes signal from transmitter and issues signal to Body Control Module (BCM) through serial data link. System also uses existing power door lock components. System has a remote panic alarm on transmitter (imprinted with horn symbol).

## OPERATION

When UNLOCK button is pressed on transmitter, signal is received by RCDLR which sends signal to BCM. BCM processes signal and unlocks driver's door only and turns on interior lights. When UNLOCK button is pressed a second time, within 5 seconds of first press, remaining doors will unlock.

To lock doors, press LOCK button to lock all doors and liftgate at once. When LOCK button is pressed a second time, within 5 seconds of first press, horn will chirp. When REAR 2X button is depressed twice within 5 seconds, liftgate window is unlatched and interior lights turn on. Vehicles equipped with manual transmissions must have parking brake applied for this feature to operate. Transmitter must be within 33 feet (10 m) to be received and decoded by RCDLR.

When transmitter panic alarm button (horn symbol) is depressed, horn will sound and parking lights will flash for up to 30 seconds. This can be stopped by depressing transmitter panic alarm button again, by waiting 30 seconds or by starting vehicle.

Keyless entry system also uses rolling code technology. Rolling code feature prevents anyone from recording signal sent to RCDLR and then using signal to gain entry to vehicle. Transmitter sends a different signal in a different order to RCDLR each time keyless entry system is used. If a programmed transmitter sends a signal that RCDLR does not expect, then transmitter is out of synchronization.

## COMPONENT LOCATIONS

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### COMPONENT LOCATIONS

| Component                         | Location   |
|-----------------------------------|--|
| Body Control Module               | Lower Center Of Instrument Panel, On Heater Case     |
| Body Relay Block                  | Left Side Dash, Right Of Instrument Panel Fuse Block |
| Remote Control Door Lock Receiver | On Left Instrument Panel Sound Insulator             |
| Underhood Fuse Block              | Underhood, On Left Inner Fenderwell                  |

### PROGRAMMING

#### TRANSMITTER PROGRAMMING

**NOTE:** Transmitters from other model vehicles may appear to be similar but are not interchangeable. Transmitters can be identified by GM/UTA preceding part number.

##### Without Scan Tool

1. Ensure driver's door is closed. With ignition switch in OFF position, hold down power unlock button on door panel. Turn ignition switch to ON position, then OFF. Turn ignition switch to ON position, then OFF a second time. Release power unlock button on door panel. RCDLR will respond by locking and then unlocking all doors and unlatching rear window (utility vehicles only) to indicate programming mode.
2. Hold down LOCK and UNLOCK buttons on transmitter until RCDLR responds by locking then unlocking all doors and unlatching rear window (utility vehicles only).
3. Repeat step 2 for each additional transmitter. Program all extra transmitters at this time. When a new transmitter is programmed, old transmitters will be deactivated.
4. Turn ignition switch to ON position to exit programming mode.

#### TRANSMITTER RESYNCHRONIZATION

1. Resynchronization may be necessary due to security methods used by Remote Keyless Entry (RKE) system. Transmitters do not send same signal twice. RCDLR will not respond to a signal it has been sent previously preventing recording and playback of transmitter signal. Resynchronization will be necessary if any of the following occur:
  - Transmitter battery is very weak.
  - Transmitter battery is changed.
  - Vehicle battery is very weak.
  - Vehicle battery has been low or not charged for an extended period of time.
2. To resynchronize transmitter to RCDLR, stand within 5 feet of vehicle and simultaneously depress and hold LOCK and UNLOCK buttons on transmitter for 7

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seconds. Door locks should cycle to confirm resynchronization.

## TROUBLE SHOOTING

### PRELIMINARY INSPECTION

Check TBC fuse (10-amp) and MIR/LKS fuse (3-amp) in under hood fuse block. Check PWR LKS fuse (15-amp) in instrument panel fuse block. Verify proper operation of power door locks and interior light systems. Ensure ground connections are clean and tight. Check for proper installation of any aftermarket electronic equipment that may affect integrity of other systems. Try a known good transmitter. If system operates, change batteries in first transmitter and try again. If transmitter still does not operate, it is defective. Ensure transmitter battery terminals are clean and make good contact with battery. Check for BCM DTCs. See **REMOTE KEYLESS ENTRY DIAGNOSTIC SYSTEM CHECK** under SELF-DIAGNOSTIC SYSTEM.

## SELF-DIAGNOSTIC SYSTEM

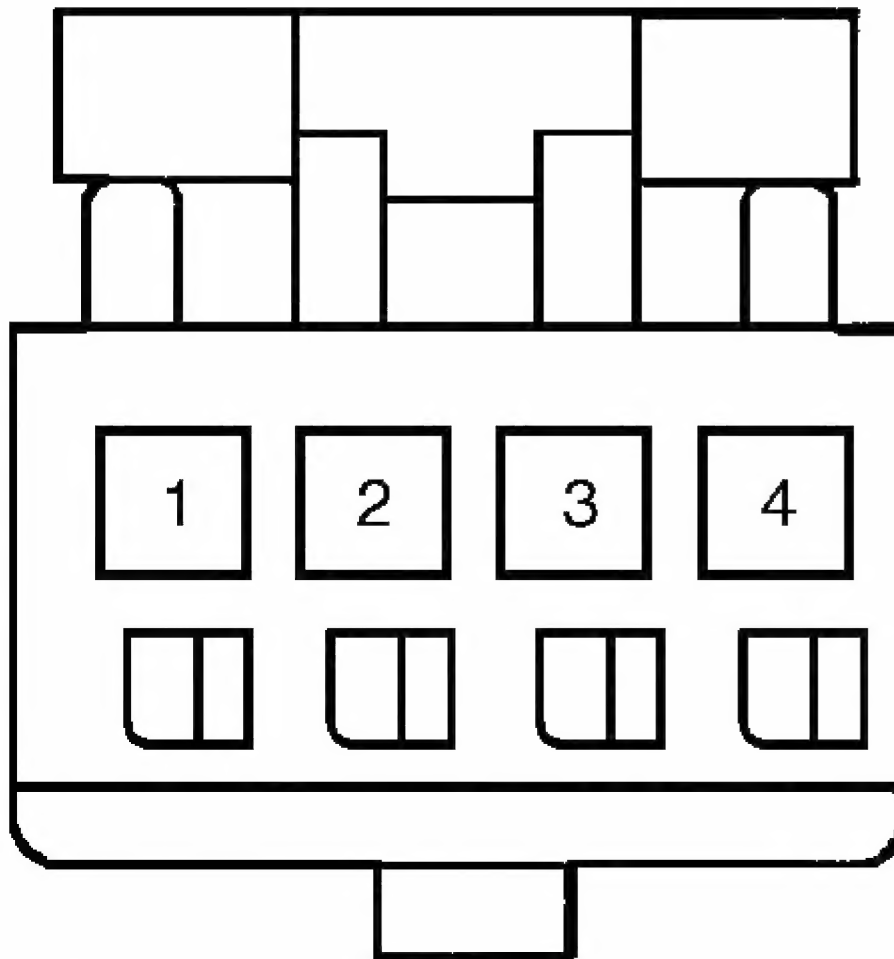
### REMOTE KEYLESS ENTRY DIAGNOSTIC SYSTEM CHECK

1. Install scan tool. If scan tool powers up, go to next step. If scan tool does not power up, see **SCAN TOOL DOES NOT POWER UP** in appropriate BODY CONTROL MODULES article.
2. Turn ignition on, engine off. Try to establish scan tool communication with BCM. If communication with BCM is established, go to next step. If communication with BCM is not established, see **SCAN TOOL DOES NOT COMMUNICATE WITH CLASS 2 DEVICE** in appropriate BODY CONTROL MODULES article.
3. Select display DTCs function for BCM. Record all displayed DTCs and status of displayed DTCs. If DTCs are displayed, go to next step. If no DTCs are displayed, see **SYSTEM TESTS** .
4. If scan tool does not display any DTCs beginning with "U", go to next step. If scan tool displays DTCs beginning with "U", see **SCAN TOOL DOES NOT COMMUNICATE WITH CLASS 2 DEVICE** in appropriate BODY CONTROL MODULES article.
5. If scan tool displays DTC B1000, see appropriate BODY CONTROL MODULES article. If scan tool does not display DTC B1000, see **DTC B3102: KEYLESS ENTRY DATA LINK CIRCUIT LOW** .

## CONNECTOR IDENTIFICATION

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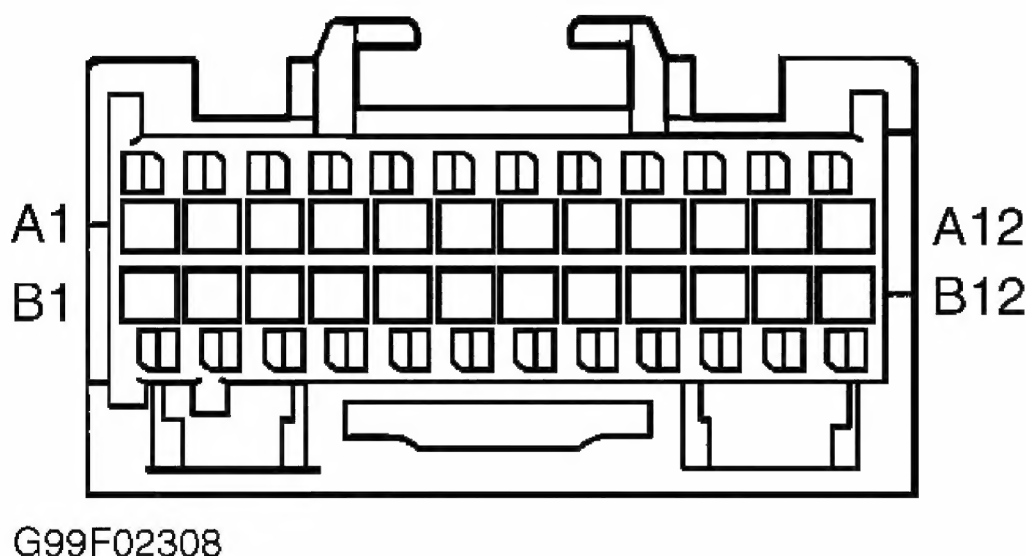


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**Fig. 1: Identifying RCDLR Connector Terminals**  
**Courtesy of GENERAL MOTORS CORP.**

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**Fig. 2: Identifying BCM Connector C1 Terminals**  
Courtesy of GENERAL MOTORS CORP.

### DIAGNOSTIC TESTS

#### DTC B3102: KEYLESS ENTRY DATA LINK CIRCUIT LOW

##### Circuit Description

DTC sets when BCM detects a short to ground in Orange wire between RCDLR and BCM for at least 0.5 second. DTC will go from current to history when BCM no longer detects short to ground in Light Green wire.

##### Diagnostic Procedure

1. If remote keyless entry diagnostic system check was performed, go to next step. If remote keyless entry diagnostic system check was not performed, go to **REMOTE KEYLESS ENTRY DIAGNOSTIC SYSTEM CHECK** under SELF-DIAGNOSTIC SYSTEM.
2. Connect scan tool. Turn ignition on, engine off. Using scan tool, observe RFA MESSAGE SINCE WAKE-UP parameter in body control module data list. If scan tool displays NONE, go to next step. If scan tool does not display NONE, go to step 4 .
3. Press UNLOCK button on transmitter. Using scan tool, observe RFA MESSAGE SINCE WAKE-UP parameter in body control module data list. If parameter does not change state, go to next step. If parameter changes, problem is intermittent.



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4. Turn ignition off. Disconnect RCDLR connector. Turn ignition on, engine off. If scan tool does not display NONE, go to next step. If scan tool displays NONE, go to step 7 .
5. Check Orange wire between RCDLR and BCM for short to ground. See **WIRING DIAGRAMS** . If problem was not found, go to next step. If problem was found, repair as necessary and then go to step 10 .
6. Check BCM connectors for poor connections. If problem was not found, go to step 8 . If problem was found, repair as necessary and then go to step 10 .
7. Check RCDLR connector for poor connections. If problem was not found, go to step 9 . If problem was found, repair as required, and then go to step 10 .
8. Replace BCM. See appropriate BODY CONTROL MODULES article in ACCESSORIES & EQUIPMENT.
9. Replace RCDLR. See **REMOTE CONTROL DOOR LOCK RECEIVER** under REMOVAL & INSTALLATION.
10. Using scan tool, clear DTCs. Operate system to ensure DTC does not reset.

## SYSTEM TESTS

### SYMPTOM INDEX

| Symptom   | Perform Test |
|---|--------------|
| Door Lock Function Inoperative With Transmitter   | <b>A</b>     |
| Door Unlock Function Inoperative With Transmitter | <b>B</b>     |
| Panic Mode Inoperative                            | <b>C</b>     |
| Remote Keyless Entry System Inoperative           | <b>D</b>     |

**CAUTION:** To prevent damage, connector Test Adapter Kit (J-35616-A) must be used whenever a diagnostic procedure requires checking or probing a terminal.

**NOTE:** To locate and identify terminals, see **WIRING DIAGRAMS** .

### TEST A: DOOR LOCK FUNCTION INOPERATIVE WITH TRANSMITTER

1. If remote keyless entry diagnostic system check was performed, go to next step. If remote keyless entry diagnostic system check was not performed, go to **REMOTE KEYLESS ENTRY DIAGNOSTIC SYSTEM CHECK** under SELF-DIAGNOSTIC SYSTEM.
2. Press door lock button on transmitter. If door locks operate correctly, problem is intermittent. Inspect all applicable component connectors. See **WIRING DIAGRAMS** . If door locks do not operate normally, go to next step.
3. Operate door locks from controls inside vehicle. If locks operate correctly, go to next

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step. If door locks do not operate correctly, go to appropriate POWER DOOR LOCKS article.

4. Turn on Keyless Entry Tester (J-43241) and place transmitter on test pad. Press door lock button. If Green light on tester illuminates and tone sounds after button is pressed, go to next step. If Green light does not illuminate and tone does not sound, go to step 7 .
5. Test BCM portion of power door lock relay control circuit (Light Blue wire) for an open or high resistance. If problem was found, repair as necessary and then go to step 9 . If problem was not found, go to next step.
6. Inspect for poor connections at harness connector of BCM. If problem was found, repair as necessary and then go to step 9 . If problem was not found, go to step 8 .
7. Replace and program transmitter. See **TRANSMITTER PROGRAMMING** under PROGRAMMING.
8. Replace BCM. See appropriate BODY CONTROL MODULES article. Go to next step.
9. Operate system in order to verify repair.

### TEST B: DOOR UNLOCK FUNCTION INOPERATIVE WITH TRANSMITTER

1. If remote keyless entry diagnostic system check was performed, go to next step. If remote keyless entry diagnostic system check was not performed, go to **REMOTE KEYLESS ENTRY DIAGNOSTIC SYSTEM CHECK** under SELF-DIAGNOSTIC SYSTEM.
2. Press door unlock button on transmitter. If door locks operate correctly, problem is intermittent. Inspect all applicable component connectors. See **WIRING DIAGRAMS** . If door locks do not operate normally, go to next step.
3. Operate door locks from controls inside vehicle. If locks operate correctly, go to next step. If door locks do not operate correctly, go to appropriate POWER DOOR LOCKS article in ACCESSORIES & EQUIPMENT.
4. Turn on Keyless Entry Tester (J-43241) and place transmitter on test pad. Press door unlock button. If Green light on tester illuminates and tone sounds after button is pressed, go to next step. If Green light does not illuminate and tone does not sound, go to step 7 .
5. Test BCM portion of power door unlock relay control circuit (White wire) for an open or high resistance. If problem is found, repair as necessary and then go to step 9 . If problem is not found, go to next step.
6. Inspect for poor connections at harness connector of BCM. If problem was found, repair as necessary and then go to step 9 . If problem was not found, go to step 8 .
7. Replace and program transmitter. See **TRANSMITTER PROGRAMMING** under PROGRAMMING.
8. Replace BCM. See appropriate BODY CONTROL MODULES article. Go to next step.
9. Operate system in order to verify repair.

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### TEST C: PANIC MODE INOPERATIVE

1. If remote keyless entry diagnostic system check was performed, go to next step. If remote keyless entry diagnostic system check was not performed, go to **REMOTE KEYLESS ENTRY DIAGNOSTIC SYSTEM CHECK** under SELF-DIAGNOSTIC SYSTEM.
2. Using keyless entry transmitter, attempt to operate panic function of system. If horns, park lamps and headlights pulse on and off, problem is intermittent. Inspect all applicable component connectors. See **WIRING DIAGRAMS** . If horns, park lamps and headlights do not pulse on and off, go to next step.
3. If any panic functions work, go to next step. If any panic functions do not work, see **TEST D: REMOTE KEYLESS ENTRY SYSTEM INOPERATIVE** .
4. If headlights flash, go to next step. If headlamps do not flash, see appropriate HEADLIGHT SYSTEMS & DAYTIME RUNNING LIGHTS article.
5. If park lamps flash, see appropriate EXTERIOR LIGHTS article.

### TEST D: REMOTE KEYLESS ENTRY SYSTEM INOPERATIVE

1. If remote keyless entry diagnostic system check was performed, go to next step. If remote keyless entry diagnostic system check was not performed, see **REMOTE KEYLESS ENTRY DIAGNOSTIC SYSTEM CHECK** under SELF-DIAGNOSTIC SYSTEM.
2. Press each button on transmitter one at a time. If system does not operate normally, go to next step. If system operates normally, check for intermittent problem. Inspect all applicable component connectors. See **WIRING DIAGRAMS** .
3. Attempt to lock and unlock doors using power door lock switches inside vehicle. If inside power door locks function properly, go to next step. If inside power door locks do not function properly, see appropriate POWER DOOR LOCKS article.
4. If vehicle is equipped with rear liftgate release, go to next step. If vehicle is not equipped with rear liftgate release , go to step 6 .
5. Attempt to release rear hatch from inside vehicle. If rear hatch operates properly, go to next step. If rear hatch does not operate properly, repair circuit as necessary.

**NOTE:**      **Inspect keyless entry transmitter to ensure it is correct model for this vehicle. An incorrect transmitter may pass this test, but will not activate vehicle remote system.**

6. Place transmitter on Keyless Entry Tester (J-43241) test pad. Turn keyless entry tester on. Press each button of transmitter, one at a time. Keyless entry tester should illuminate a Green light or sound off with each button pushed on transmitter. If transmitter operates correctly, go to step 11 . If transmitter does not operate correctly, go to next step.



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7. If keyless entry tester illuminates a Green light or sounds off when any transmitter buttons are pressed, go to step 10 . If keyless entry tester does not illuminate a Green light or sound off when any transmitter buttons are pressed, go to next step.
8. Replace transmitter battery. See **TRANSMITTER BATTERY** under REMOVAL & INSTALLATION. After replacing transmitter battery, go to next step.
9. Place transmitter on keyless entry tester test pad. Turn keyless entry tester on. Press each button of transmitter, one at a time. Keyless entry tester should illuminate a Green light and sound off with each button pushed on transmitter. If transmitter operates correctly, go to step 11 . If transmitter does not operate correctly, go to next step.
10. Replace transmitter. After replacing transmitter, go to step 14 .
11. Press panic alarm button (horn symbol) on transmitter. If panic function operates normally, go to next step. If panic function does not operate normally, go to step 14 .
12. Perform synchronization procedure. See **RESYNCHRONIZATION** under PROGRAMMING. If door locks cycle to lock then unlock, go to next step. If door locks do not cycle to lock then unlock, go to step 14 .
13. Stand within 5 feet of vehicle and operate all functions of transmitter. If all transmitter functions operate properly, go to step 27 . If any transmitter functions do not operate properly, go to next step.
14. Perform reprogramming procedure. See **TRANSMITTER PROGRAMMING** under PROGRAMMING. If door locks cycle to lock then unlock, go to step 27 . If door locks do not cycle to lock then unlock, go to next step.
15. Turn ignition off. Disconnect RCDLR electrical connector. See **COMPONENT LOCATIONS** . Using a test light connected to ground, backprobe RCDLR 4-pin connector terminal No. 1 (Orange wire). See **Fig. 1** . If test light illuminates, go to next step. If test light does not illuminate, go to step 25 .
16. Connect test light between RCDLR 4-pin connector terminals No. 1 (Orange wire) and No. 4 (Black/White wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 24 .
17. Connect Red lead of DVOM to RCDLR 4-pin connector terminal No. 2 (Orange wire). Connect Black lead of DVOM to ground. Turn ignition on, engine off. DVOM should display battery voltage. If battery voltage exists, disconnect DVOM and go to next step. If battery voltage does not exist, go to step 20 .
18. Ensure ignition is on, engine off. Using a test light connected to ground, backprobe RCDLR 4-pin connector terminal No. 2 (Orange wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 21 .
19. Check for short to power in Orange wire (serial data circuit). See **WIRING DIAGRAMS** . If short to power is found in Orange wire, repair as necessary and go to step 27 . If short is not found, go to step 22 .
20. Check for open circuit, high resistance or short to ground in Orange wire (serial data circuit). See **WIRING DIAGRAMS** . If open circuit, high resistance or short to ground is found in Orange wire, repair as necessary and go to step 27 . If open, high

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resistance or short to power is not found in Orange wire, go to step 22 .

21. Check for poor connection at RCDLR 4-pin connector. If poor connection is found, repair as necessary and go to step 27 . If connection at RCDLR 4-pin connector is okay, go to step 25 .
22. Check for poor connection at BCM. If poor BCM connection is found, repair as necessary and go to step 27 . If BCM connection is okay, go to step 26 .
23. Repair open, high resistance or short to ground in battery positive voltage circuit (Orange wire) of RCDLR. After making necessary repairs, go to step 27 .
24. Repair open or high resistance in RCDLR ground circuit (Black/White wire). After making necessary repairs, go to step 27 .
25. Replace RCDLR. See **REMOTE CONTROL DOOR LOCK RECEIVER** under REMOVAL & INSTALLATION.
26. Replace BCM. See appropriate BODY CONTROL MODULES article.
27. Operate system in order to verify repair.

## REMOVAL & INSTALLATION

**WARNING:** Vehicles are equipped with air bag supplemental restraint system. Before attempting ANY repairs involving steering column, instrument panel or related components, see **SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM** in appropriate **AIR BAG RESTRAINT SYSTEMS** article.

**CAUTION:** When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See **COMPUTER RELEARN PROCEDURES** article in **GENERAL INFORMATION** before disconnecting battery.

### REMOTE CONTROL DOOR LOCK RECEIVER

#### Removal & Installation

Disconnect negative battery cable. Remove left side instrument panel sound insulator. Disconnect electrical connector. Unsnap RCDLR from instrument panel sound insulator. Remove RCDLR. To install, reverse removal procedure. Program transmitters. See **TRANSMITTER PROGRAMMING** under PROGRAMMING. Check system operation.

### TRANSMITTER BATTERY

#### Removal & Installation

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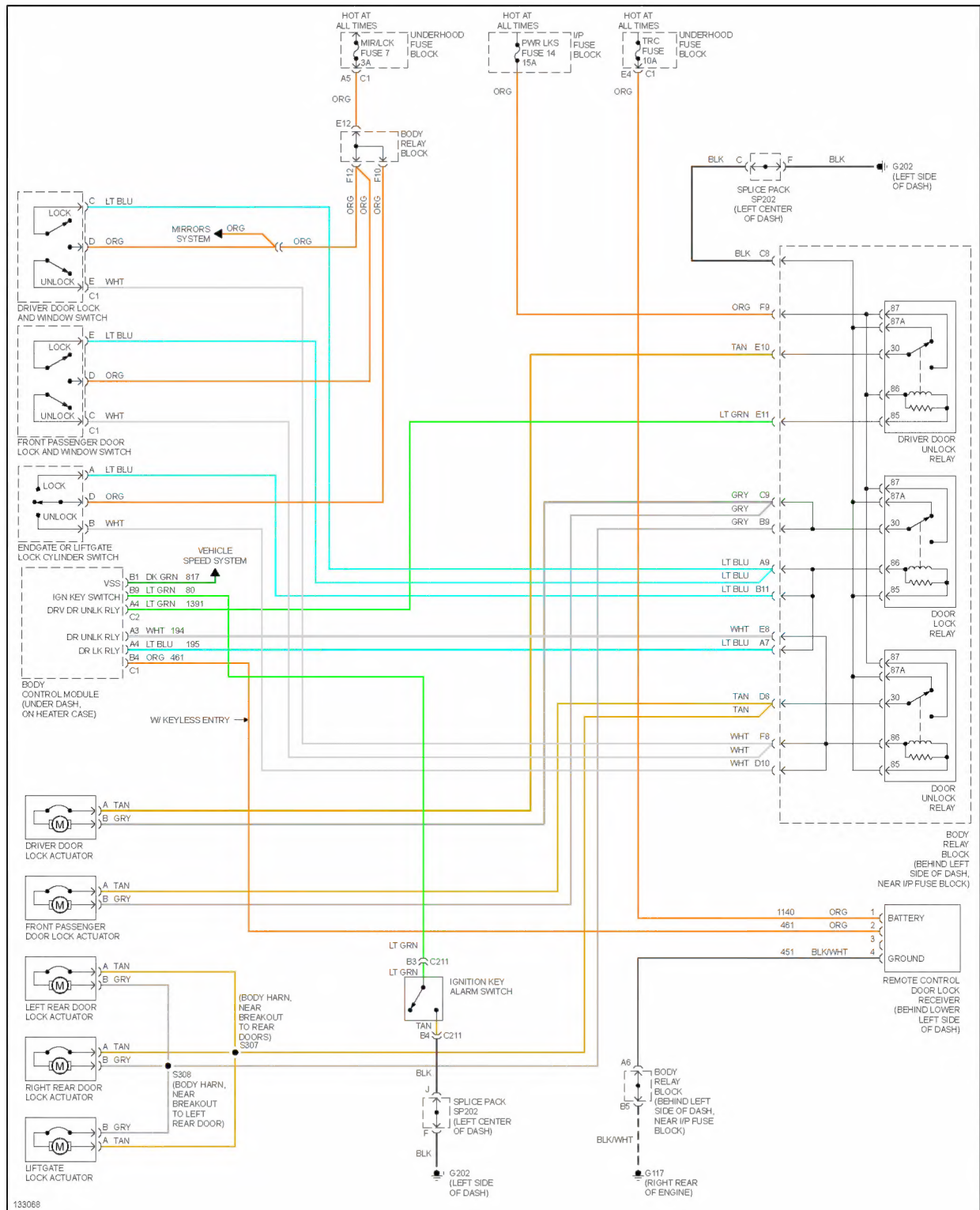
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Insert small flat-bladed tool or coin into slot of transmitter near key ring hole. Carefully pry 2 halves apart. Remove battery. Install 3-volt CR2032 battery with positive side up. Ensure transmitter case seal is in position. Snap transmitter case halves together. Resynchronize transmitter. See **TRANSMITTER RESYNCHRONIZATION** under PROGRAMMING.

## WIRING DIAGRAMS

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**Fig. 3: Remote Keyless Entry System Wiring Diagram (Blazer, Bravada, Jimmy, Sonoma & S10 Pickup)**